**ALPHA UNIVERSITY BORAMA**

**Assignment of math’s methods**

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**The assignment**

**Individual assailment the assignment 30 marks**

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1. Express the ratio 12:16 in its simplest form.
2. Divide $120 in the ratio 2:3.
3. The ratio of cats to dogs in a pet shop is 4:7. If there are 28 dogs, how many cats are there?
4. If a person earns $240 for working 8 hours, what is the rate of pay per hour?
5. Are the ratios 6:9 and 8:12 proportional?
6. If 3 shirts cost $45, how much would 5 shirts cost at the same rate?
7. If 5 pens cost $10, how much do 12 pens cost?
8. A class has 18 boys and 12 girls. What is the ratio of boys to the total number of students?
9. Find 25% of 480.
10. A jacket is sold for $150 after a 20% discount. What was the original price?
11. A salesperson earns a 5% commission on sales. If they sell goods worth $2,000, how much commission do they earn?
12. If 60% of a number is 180, what is the original number?
13. Find the simple interest on $1,200 at a rate of 5% per annum for 3 years.
14. A sum of $2,000 is invested at 10% per annum for 3 years compounded annually. Find the total amount.
15. A loan of $2,000 is given for 2 years at a rate of 6% per annum. What is the total amount to be repaid at the end of the period?

**1. Express the ratio 12:16 in its simplest form.**

Answer:

Divide both numbers by 4:

12 ÷ 4 = 3, and 16 ÷ 4 = 4

Simplest form = 3:4

**2. Divide $120 in the ratio 2:3.**

Answer:

Total parts = 2 + 3 = 5

Each part = 120 ÷ 5 = 24

So:

First share = 2 × 24 = $48

Second share = 3 × 24 = $72

**3. The ratio of cats to dogs in a pet shop is 4:7. If there are 28 dogs, how many cats are there?**

Answer:

7 parts = 28 → 1 part = 4

Cats = 4 × 4 = 16 cats

**4. If a person earns $240 for working 8 hours, what is the rate of pay per hour?**

Answer:

240 ÷ 8 = $30 per hour

**5. Are the ratios 6:9 and 8:12 proportional?**

Answer:

6 ÷ 9 = 0.666…

8 ÷ 12 = 0.666…

Yes, they are proportional

**6. If 3 shirts cost $45, how much would 5 shirts cost at the same rate?**

Answer:

1 shirt = 45 ÷ 3 = 15

5 shirts = 5 × 15 = $75

**7. If 5 pens cost $10, how much do 12 pens cost?**

Answer:

1 pen = 10 ÷ 5 = 2

12 pens = 12 × 2 = $24

**8. A class has 18 boys and 12 girls. What is the ratio of boys to the total number of students?**

Answer:

Total students = 18 + 12 = 30

Ratio = 18:30 → divide by 6 = 3:5

**9. Find 25% of 480.**

Answer:

25% = 0.25

0.25 × 480 = 120

**10. A jacket is sold for $150 after a 20% discount. What was the original price?**

Answer:

Discounted price = 80%

80% = $150 → 1% = 150 ÷ 80 = 1.875

Original price = 1.875 × 100 = $187.50

**11. A salesperson earns a 5% commission on sales. If they sell goods worth $2,000, how much commission do they earn?**

Answer:

5% of 2000 = 0.05 × 2000 = $100

**12. If 60% of a number is 180, what is the original number?**

Answer:

0.6 × number = 180

Number = 180 ÷ 0.6 = 300

**13. Find the simple interest on $1,200 at a rate of 5% per annum for 3 years.**

Answer:

SI = (P × R × T) / 100 = (1200 × 5 × 3) / 100 = $180

**14. A sum of $2,000 is invested at 10% per annum for 3 years compounded annually. Find the total amount.**

Answer:

A = P (1 + r) ^t = 2000(1 + 0.10) ^3 = 2000 × 1.331 = $2,662

**15. A loan of $2,000 is given for 2 years at a rate of 6% per annum. What is the total amount to be repaid at the end of the period?**

Answer:

SI = (2000 × 6 × 2) / 100 = 240

Total = 2000 + 240 = $2,240